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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,810	08/28/2003	Avinash Jain	030159	9973

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QUALCOMM INCORPORATED		
5775 MOREHOUSE DR.		
SAN DIEGO, CA 92121		

EXAMINER	
BURROWES, LAWRENCE J	

ART UNIT	PAPER NUMBER
2619	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com
kscanla@qualcomm.com
nanm@qualcomm.com

SK

Office Action Summary	Application No. 10/651,810	Applicant(s) JAIN ET AL.	
	Examiner LAWRENCE J. BURROWES	Art Unit 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-19 and 21-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-19 and 21-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 16, 18, 22, 34 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Koo et al (6,804,219) hereafter Koo.

For claims 16, 18 and 22, Koo disclose a station and method of scheduling data as claimed comprising: receiving a rate request (see Figure 6 Box 610, the channel request message include resource request information); transmitting a rate assignment responsive to the rate request (see Figure 6 Box 620, the channel assignment message includes allocation information), the rate assignment indicating a scheduled duration and a scheduled rate applicable for the scheduled duration (see Figure 3 Box 350 and 360, the assignment transmits at a high rate and for a certain period as determined by the SCH timer); and receiving data for the scheduled duration at the scheduled rate (see Figure 6, Box 630, data transmitted for a certain time period).

For claims 34 and 36, Koo disclose a base station (BS) and apparatus (MS) for scheduling data transmissions, comprising: an antenna (CDMA wireless system); a receiver (CDMA wireless system) configured to receive a rate request via the antenna (see Figure 6 Box 610, the channel request message include resource request information); a controller (state machine) configured to determine a rate request responsive to the rate request (see Figure 6 Box 620, the channel assignment message includes allocation information), the rate assignment indicating a scheduled duration and a scheduled rate applicable for the schedules duration (see Figure 3 Box 350 and 360, the assignment transmits at a high rate and for a certain period as determined by the SCH timer); and a transmitter configured to transmit the rate assignment (see Figure 6 Box 620, the channel assignment message includes allocation information), wherein the receiver is further configured to receive data for the scheduled duration at the scheduled rate (see Figure 6, Box 630, data transmitted for a certain time period).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

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said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2-3, 17, 19, 21, 23, 24, 35 and 37 are rejected under 35 U.S.C. 103(a) as being obvious over Koo in view of Tuch (5,390,165).

For claims 17, 19 and 21, Koo disclose transmitting a rate request (see Figure 6 Box 610, the channel request message include resource request information; receiving a rate request (see Figure 6 Box 610, base station receives the message); transmitting a rate assignment responsive to the rate request, the rate assignment indicating a scheduled duration and a scheduled rate applicable for the scheduled duration (see Figure 3 Box 350 and 360, the assignment transmits at a high rate and for a certain period as determined by the SCH timer); receiving the rate assignment (see Figure 3 Box 330, base station receives the message); and transmitting data, the transmitting responsive to the rate assignment, wherein the data transmitted for the scheduled duration at the scheduled rate (see Figure 3, Box 350, data transmitted for a certain time period).

Koo disclose all the limitations of the claimed invention except transmitting the message if data arriving in a buffer, data exceeding a buffers depth and sufficient power levels to transmit.

Tuch from the same or similar fields of endeavor teaches transmitting the message if data arriving in a buffer (see column 4 line 36, packet buffer), data exceeding the buffers depth (see column 4 lines 37-56, packet length buffer analyzes how much can be stored in the buffer) and power levels to transmit (see column 4 lines 37-56, power database holds what levels are needed to transmit).

Therefore, it would have been obvious to one of ordinary skill in that art at the time of the invention to modify/implement the packet buffer monitoring of Tuch into the data transmitting system of Koo by connecting the buffer monitoring to mobile. The motivation to do so would be to enable transmission power to be maintained at on average low level, without the need to reduce the data rate.

Regarding claims 2 and 23, wherein the scheduled duration is an integer multiple of a minimum scheduled duration (see Koo reference column 3 lines 55-63, duration time is determined which is a number).

Regarding claims 3 and 24, where the scheduled duration is less than or equal to a scheduling period, the scheduling period is an interval of time after which a scheduler makes a scheduling decision (see Koo reference column 2 lines 39-51, the scheduling time and period at which it transmits is predetermined so it can be equal each time).

For claims 35 and 37, Koo a mobile station (MS) and apparatus (MS) for transmitting data, comprising: an antenna (CDMA wireless system); a transmitter (CDMA wireless system) configured to transmit the rate request via the antenna (see Figure 6 Box 610, the channel request message include resource request information); and a receiver (CDMA wireless system) configured to receive a rate assignment responsive to the rate request (see Figure 6 Box 610, base station receives the message), the rate assignment indicating a scheduled duration and a scheduled rate applicable for the scheduled duration (see Figure 3 Box 350 and 360, the assignment transmits at a high rate and for a certain period as determined by the SCH timer), wherein the transmitter is further configured to transmit data (see Figure 3 Box 330, base station and mobile transmit message between each other), the transmitted data responsive to the rate assignment, wherein the data is transmitted for the scheduled duration at the scheduled rate (see Figure 3, Box 350, data transmitted for a certain time period).

Koo disclose all the limitations of the claimed invention except a controller configured to generate a rate request if data arrives in a buffer, data in the buffer exceeds a buffer depth, and sufficient power exists to transmit at the rate requested.

Tuch from the same or similar fields of endeavor teaches a controller (state control unit) configured to generate a rate request if data

arrives in a buffer (see column 4 line 36, packet buffer), data in the buffer exceeds a buffer depth (see column 4 lines 37-56, packet length buffer analyzes how much can be stored in the buffer), and sufficient power exists to transmit at the rate requested (see column 4 lines 37-56, power database holds what levels are needed to transmit).

Therefore, it would have been obvious to one of ordinary skill in that art at the time of the invention to modify/implement the packet buffer monitoring of Tuch into the data transmitting system of Koo by connecting the buffer monitoring to mobile. The motivation to do so would be to enable transmission power to be maintained at on average low level, without the need to reduce the data rate.

6. Claims 4-15 and 25-33 are rejected under 35 U.S.C. 103(a) as being obvious over Koo in view of Tuch, and further in view of Tiedemann, Jr et al (5,914,950) hereafter Tiedemann.

For claims 4-6 and 25-27, Koo in view of Tuch discloses all the limitation of the claimed invention except the scheduling period and duration are variable.

Tiedemann from the same or similar fields of endeavor teaches the scheduling period and duration are variable (see column 22 lines 24-34, the periods and duration of transmitting varies depending on which mobile has control).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify/implement time varying scheduling of Tiedemann into the combined system of Koo in view of Tuch by programming the scheduler to vary the times at which it transmits. The motivation to do so would be so that enhanced features of the mobile would not tie up bandwidth needed by other mobiles.

Regarding claims 7 and 28, wherein the scheduled duration is based on priority of a station (see Tiedemann column 11 lines 21-23, priority list of users).

Regarding claims 8 and 29, wherein the scheduled duration is based on a maximum supportable rate (see Tiedemann column 11 lines 38-41, scheduler calculates maximum supportable rate).

Regarding claims 9 and 30, wherein the scheduled duration is the longest possible duration for the maximum supportable rate (see Tiedemann column 11 lines 38-52, maximum supportable rate of the user depends on what it can support).

Regarding claim 10, wherein the scheduled duration is based on an estimate of amount of data in the buffer (see Tiedemann column 21 lines 49-67, queue size used by scheduler to determine which user can transmit).

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Regarding claims 11 and 31, wherein the priority of the station is based on channel conditions (see Tiedemann column 12 lines 4-23, the channel capacity helps calculate which user gets to transmit first).

Regarding claim 12, wherein the priority of the station is based on an estimate of the amount of data in the buffer (see Tiedemann column 12 lines 4-23 and see column 21 lines 49-67, queue size used by scheduler to determine which user can transmit).

Regarding claims 13 and 32, wherein the priority of the station is based on the rate requested (see Tiedemann column 11 lines 21-52).

Regarding claims 14 and 33, wherein the priority of the station is based on throughput allocated (see Tiedemann column 32 lines 6-33, the capacity needed determines which user get priority).

Regarding claim 15, wherein the station is a mobile station (see Tiedemann Figure 1 Box 6a, mobile vehicle).

Response to Arguments

7. Applicant's arguments filed 14 August 2007 have been fully considered but they are not persuasive.

In regard to remarks on pages 8-11, the applicant argues that the reference, Koo, does not disclose that a high rate of transmission assignment has been indicated as a scheduled rate applicable for a scheduled duration recited in claims 16, 18 and 21. The examiner respectfully disagrees. It is noted that Koo teaches transmitting data at a

high rate (Figure 3 Box 350). To transmit data on a high rate a data, the DTCH assigns the high transmission substrate for a predetermined duration time (see column 3 lines 55-60). A scheduled time is considered as a predetermined time.

The applicant argues that the combined references of Koo and Tuch, does not disclose a rate request if the data in the buffer exceeds a buffer depth. The examiner respectfully disagrees. It is noted that the combined references of Koo and Tuch disclose a rate request if the data in the buffer exceeds a buffer depth. Koo discloses transmitting rate requests from device to device as noted above. Tuch discloses requesting if the data buffer exceeds a buffer depth. As packets enter the packet buffer the buffer analyzes the length of a packet and informs the system as to how much energy is needed to transmit the packet.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **LAWRENCE J. BURROWES** whose telephone number is (571) 270-1419. The examiner can normally be reached on Monday - Thursday 5:30am - 2pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan D. Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJB
EDAN . . ORGAD
SUPERVISORY PATENT EXAMINER

Eden Orgad 10/29/07